

What is claimed is:

1. A metal mask structure in which a metal mask for depositing a thin layer is welded to a support frame, the welding portion being positioned within at least a substrate to be deposited, characterized in that a concave part is formed 5 in a surface of said metal mask which is an opposite side of a surface of said metal mask being contacted to the frame and that the metal mask and the support frame are welded to each other within the concave part.

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2. The metal mask structure according to claim 1 wherein a depth of the concave part which is formed in the metal mask is the depth in which a protrusion of a welding flash formed on the surface of the metal mask being contacted 5 to the substrate to be deposited becomes within a range from 0 to 40 μm after welding.

3. The metal mask structure according to claim 1 wherein the metal mask is secured with the tension applied thereto when the metal mask is secured to the support frame.

4. The metal mask structure according to claim 1 wherein said concave part is a continuous groove.

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5. The metal mask structure according to claim 1 wherein said concave part has a circular or rectangular shape

as a plane shape.

6. The metal mask structure according to claim 2 wherein the metal mask is secured with the tension applied thereto when the metal mask is secured to the support frame.

7. The metal mask structure according to claim 2 wherein said concave part is a continuous groove.

8. The metal mask structure according to claim 2 wherein said concave part has a circular or rectangular shape as a plane shape.

9. A method for manufacturing a metal mask structure in which a metal mask for depositing a thin layer is welded to a support frame, the welding portion being positioned within at least a substrate to be deposited, characterized in that
5 a concave part is formed in a surface of said metal mask which is an opposite side of a surface of said metal mask being contacted to the frame and that the metal mask and the support frame are welded to each other within the concave part.

10. The method for manufacturing the metal mask structure according to claim 9 wherein said concave part is formed through cutting.

11. The method for manufacturing the metal mask structure according to claim 9 wherein said concave part is formed through etching.

12. The method for manufacturing the metal mask structure according to claim 9 wherein a deposition opening pattern formed in the metal mask is realized by wet-etching which is performed on both sides of the mask at two different 5 times, said concave part being simultaneously formed when the surface of the mask which is the opposite side of the surface of the mask being contacted to the frame is etched.

13. The method for manufacturing the metal mask structure according to claim 9 wherein a depth of the concave part which is formed in the metal mask is the depth in which a protrusion of a welding flash formed on the surface of the 5 metal mask being contacted to the substrate to be deposited becomes within a range from 0 to 40 μm after welding.

14. The method for manufacturing the metal mask structure according to claim 9 wherein the metal mask is secured with the tension applied thereto when the metal mask is secured to the support frame.

15. The method for manufacturing the metal mask structure according to claim 9 wherein the welding of the metal

mask and the frame is performed through laser welding.